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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,767	02/25/2002	Shunpei Yamazaki	740756-2443	9406

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EXAMINER	
NGUYEN, THANH T	

ART UNIT	PAPER NUMBER
2813	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/081,767	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Thanh T. Nguyen	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *15 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-8,17-22,25 and 49-85* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-8,17-22,25 and 49-85* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/15/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The request filed on 7/15/04 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 10/081767 is acceptable and a RCE has been established. An action on the RCE follows.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119 (a)-(d).

Information Disclosure Statement

The information disclosure statement filed 7/15/04 has been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6-7, 18-21, 25, 49, 51, 54, 57-60, 62, 64, 78-81 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al. (U.S. Publication No. 2002/0119585).

Referring to figures 2a-4d, Yamazaki et al. teaches a method of manufacturing a semiconductor device, comprising the steps of:

Adding a metal element (Ni, see paragraph# 64, as claimed in claims 25, 64, 76, 81) to an amorphous semiconductor film (12, see paragraph# 63, as claimed in claim 79),

Irradiating the first crystalline semiconductor film (12, see paragraph# 64,, as claimed in claim 80-81) with a laser light to form a second crystalline semiconductor film having a warp (convex/ridges, see paragraph# 64),

Etching (patterning) the second crystalline semiconductor film (12) to form a crystalline semiconductor island (see figures 4b-4c),

Second heating the crystalline semiconductor island at a higher temperature than the first heating step to lessen the warp (see paragraph# 65)

Regarding to claims 18, 57, 69, lamp light is radiated in the second heating step (see paragraph# 65-66).

Regarding to claims 20, 59, 71, lamp light is radiated from at least one selected form the group consisting of an upper side and lower side of the substrate (see figures 4a-4b).

Regarding to claims 21, 60, 72, lamp light is radiated from halogen lamp (see paragraph# 65-66).

Regarding to claims 49, 54, 66 excimer laser (see paragraph# 64).

Regarding to claims 50, 67, the laser light has a rectangular or linear shape. The shape of the light does not make the device function different therefore it would have been obvious to form the laser light has a rectangular or linear shape as a design choice.

Regarding to claims 51, 62, 74, form the amorphous layer by using the LPCVD (see paragraph# 63).

Regarding to claim 80, semiconductor film is crystallized before the irradiating with laser light (see paragraph#64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8, 17, 22, 25, 50, 52-53, 55-56, 61, 63, 65-77, 82-85 and 49-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. Publication No. 2002/0119585) as applied to claims 6-7, 18-21, 25, 49, 51, 54, 57-60, 62, 64, 78-81 above.

Referring to figures 2a-4d, Yamazaki et al. teaches a method of manufacturing a semiconductor device, comprising the steps of:

Adding a metal element (Ni, see paragraph# 64, as claimed in claims 85) to an amorphous semiconductor film (12, see paragraph# 63, as claimed in claim 83),

Irradiating the first crystalline semiconductor film (12, see paragraph# 64,, as claimed in claim 80-81) with a laser light to form a second crystalline semiconductor film having a warp (convex/ridges, see paragraph# 64),

Etching (patterning) the second crystalline semiconductor film (12) to form a crystalline semiconductor island (see figures 4b-4c),

Second heating the crystalline semiconductor island at a higher temperature than the first heating step to lessen the warp (see paragraph# 65).

It is noted that absent a showing of unexpected result, a change in sequence involves routine optimization of process of prior art and would have been obvious to one skilled in the art at the time the invention was made. A change in sequence/reversal of process steps is obvious under 35 USC 103 (exparte Rubin, 128 USPQ 440 (Bd. App. 1959)). See also in re Burhans, 154 F.2d 690,69 USPQ 330 (CCPA).

Regarding to claims 17, 56, 68, annealing furnace is used in the second heating step (see paragraph# 65-66, It is known in the art that heating step is done in the furnace to prevent the contamination).

Regarding to claims 18, 57, 69, lamp light is radiated in the second heating step (see paragraph# 65-66).

Regarding to claims 20, 59, 71, lamp light is radiated from at least one selected form the group consisting of an upper side and lower side of the substrate (see figures 4a-4b).

Regarding to claims 21, 60, 72, lamp light is radiated from halogen lamp (see paragraph# 65-66).

Regarding to claims 49, 54, 66, excimer laser (see paragraph# 64).

Regarding to claims 51, 62, 74, form the amorphous layer by using the LPCVD (see paragraph# 63).

Regarding to claim 84, semiconductor film is crystallized before the irradiating with laser light (see paragraph#64).

However, the reference does not teach the laser light has a rectangular or linear shape, semiconductor device as claimed above to use as display or camera or computer or telephone, the specific temperature range, the time range, the rate of heating.

Regarding to claims 50, 67, the laser light has a rectangular or linear shape. The shape of the light does not make the device function different therefore it would have been obvious to form the laser light has a rectangular or linear shape as a design choice.

Regarding to claims 53, 55, 77, It is obvious to one of ordinary skill in the requisite art at the time of the invention was made to form a semiconductor device as claimed above to use as display or camera or computer or telephone.

The temperature range, the time range, the rate of heating are considered to involve routine optimization while has been held to be within the level of ordinary skill in the art. As noted in In re Aller *105 USPQ233*, the selection of reaction parameters such as temperature and concentration would have been obvious:

> "Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art...such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."
> *In re Aller 105 USPQ233, 255 (CCPA 1955). See also In re Waite 77 USPQ 586 (CCPA 1948); In re Scherl 70 USPQ 204 (CCPA 1946); In re Irmscher 66 USPQ 314 (CCPA*

1945); In re Norman 66 USPQ 308 (CCPA 1945); In re Swenson 56 USPQ 372 (CCPA 1942); In re Sola 25 USPQ 433 (CCPA 1935); In re Dreyfus 24 USPQ 52 (CCPA 1934). Therefore, one of ordinary skill in the requisite art at the time the invention was made would have used any temperature range, the time range, the rate of heating range suitable to the method in process of Yamazaki et al. in order to optimize the process.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached on (571) 272-1702. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956 (**See MPEP 203.08**).

Thanh Nguyen
Patent Examiner
Patent Examining Group 2800

TTN